

The following paper was read by title:

HEMEROBIIDAE FROM QUEENSLAND, AUSTRALIA.

[Neuroptera, Hemerobiidæ.]

By NATHAN BANKS.

The species described and recorded in the following pages were taken in Australia by Doctor R. C. L. Perkins, who collected in Queensland. Extremely few collectors have paid any attention to these insects, so it is not surprising that most of them are new. Only a few other forms have been recorded from Australia by McLachlan and by Gerstaecker.

In general appearance they are very similar to our native species, but nearly all belong to new genera. Two genera, *Sisyra* and *Micromus*, are represented in our country and in Europe. I have added the description of a new species from the Fiji Islands, also sent by Doctor Perkins.

TABLE OF GENERA.

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|---|------------------------|
| 1. No recurrent vein at base of the fore wings | 2. |
| A recurrent vein at base of fore wings | 3. |
| 2. But one radial sector, which is connected to radius twice; no gradate series | <i>Sisyra</i> . |
| Several radial sectors; at least one gradate series of veinlets. | |
| | <i>Micromus</i> . |
| 3. Many cross-veins between subcosta and radius; one many branched radial sector..... | <i>Psychopsis</i> . |
| Few, if any, cross-veins between subcosta and radius..... | 4. |
| 4. A series of cross-veins in hind wings; two series in fore wings... | 5. |
| No series of cross-veins in the hind wings; no outer gradate series in the fore wings..... | <i>Notiobiella</i> . |
| 5. Outer margin of fore-wings very plainly excavate.... | <i>Drepanopteryx</i> . |
| Outer margin of fore-wings entire..... | 6. |
| 6. Two radial sectors; no stigmal gradate series..... | <i>Carobius</i> . |
| Three radial sectors; second not forked; a gradate series obliquely inward from the stigma..... | <i>Psychobiella</i> . |
| Four radial sectors; three gradate series in the fore-wings; two series in the hind wings..... | <i>Megalomina</i> . |

Sisyra brunnea, new species.

Brown, thorax and legs more yellowish brown, wings brown in general appearance; more closely it is seen that the veins are dark brown, and a brown streak runs through the middle of each cell; several of the costal cross-veins and some of the others more heavily marked

with brown or almost black; stigmal area darker in both pairs. Antennæ blackish on basal part, yellowish toward tip. Vertex smooth and shining; antennæ rather long, fully one-half the length of the fore wings; wings of usual shape; the radial sector has three branches, and is connected back to the radius three times, once near the tip. In the hind wings the radial sector bends away and then toward radius and is connected back to radius twice; the radial sector has three branches; the anal vein has four branches to the hind margin.

Expanse, 9 to 10 mm.

From Kuranda and Brisbane, Queensland, Australia.

Sisyra punctata, new species.

Yellow-brown; wings brown, the veins pale dotted with brown; hind wings with the stigma and costa beyond dark brown; antennæ yellowish, except the base, also legs. Basal joints of the antennæ elongate, nearly twice as long as usual. Vertex rather broader and more flat than usual, and hairy, not shining. Wings of the usual shape and veined as in *S. brunnea*, but the hind wings are plainly broader than in that species.

Expanse, 10 mm.

From Bundaberg district, Middle Queensland, Australia.

PSYCHOPSIS.

Five species of this genus are now known from Australia, and have been treated by Mr. Froggatt in the Proceedings of the Linnean Society, New South Wales, for 1903.

I have seen but one species, *P. mimica* Newm.

Micromus froggatti, new species.

I propose this name to replace the *Micromus australis* Froggatt, which is preoccupied by the *Micromus australis* Hagen, 1858, from Ceylon. There are numerous specimens in the collection, from Middle Queensland and Cairns district, North Queensland, which agree with two specimens kindly sent me by Mr. Froggatt.

Micromus vinaceus Gerst.

From Cairns district, North Queensland; it is readily separated from *M. froggatti* by the broader wings, and six radial sectors.

Drepanepteryx humilis McLachl.

One specimen from Middle Queensland, Australia; there are two other species of the genus described from Australia.

MEGALOMINA, new genus.

A recurrent vein in fore wings; four radial sectors, first simple and connected to medius; fore wings acute and almost falcate at tips; three series of gradate veinlets in fore wings; two series in the hind wings; antennæ rather long, and legs are also slender.

Type.—*M. acuminata*.

Gerstaecker's *Megalomus lanceolatus* probably belongs to this genus.

Megalomina acuminata, new species.

Head yellow; thorax yellowish, dark on sides; legs pale yellow, hind tibiae long, slender, curved and fusiform; antennæ fully two-thirds the length of the fore wings, pale yellow, apical part darker. Fore wings pale brownish, venation brown, dotted with darker brown, a streak on the cubitus and on lower part of graduate series dark brown, and some of the outer gradate veinlets dark brown, extreme tip with small dark patch; hind wings pale brown, stigma darker, venation yellowish brown. Fore wings long and slender, acute at apex, hind margin near the tip faintly concave, four radial sectors, costal area not very broad at base, with many veins.

Expanse, 22 mm.

From Bundaberg district, Middle Queensland, Australia.

CAROBIUS, new genus.

Fore wings with a recurrent vein; first radial sector connected to medius; an outer series of gradate veinlets in the hind wings; in the fore wings there is an outer gradate series, but no inner series, except a few from near base of the first radial sector; two radial sectors, first not connected to the second.

Type.—*C. pulchellus*.

Carobius angustus, new species.

Head yellow-brown; antennæ dark brown, not one-half as long as fore wings; thorax yellow brown; prothorax dark on sides, and some dark spots on meso and metathorax; abdomen dark above, paler beneath; legs pale yellow. Fore wings faintly brownish, darkest on apical and hind margins; venation pale, with long dark brown streaks, forkings and cross-veins all broadly dark brown; stigma dark brown; hind wings

faintly dusky; venation uniformly pale yellowish brown; stigma darker. Fore wings rather narrow, over two and one-half times as long as broad, costal area not very broad at base, and with few veins; second radial sector forked twice. Tip of female abdomen with a superior pair of long, slender, curved appendages.

Expanse, 11 mm.

From Middle Queensland, Australia.

Carobius pulchellus, new species.

Head pale, a dark spot between antennæ, and one each side on the vertex; antennæ pale yellow, hardly one-half the length of the fore wings; thorax pale in middle, blackish on the sides; abdomen blackish above, pale beneath; legs pale yellow, middle and hind tibiæ fusiform. Fore wings yellowish, hyaline, venation mostly pale, the gradate veinlets dark brown, also the bases of the costal veinlets a broad dark streak along radius for one-third the way out, and also one along anal margin, and from stigma is an oblique stripe outward, and some spots on basal part of wing, varying somewhat; in one specimen the streaks are absent, only stigma brown, and a short brown spot on radius at end of what was the streak on the fully marked specimen. Hind wings pale, venation pale, stigma brown. Fore wings fully two and a fourth times as long as broad; costal area very broad at base, and quite densely veined; second radial sector with two forks. Tip of female abdomen with two short, straight processes.

Expanse, 12 mm.

From Brisbane, Queensland, Australia.

PSYCHOBIELLA, new genus.

A recurrent vein in front wings. Radial sector connected to medius some distance out from the origin of the first sector, three radial sectors, the second simple, others forked, the cross-veins at cubitus disjointed and of about equal length; the outer gradate series is very long, of about 12 veinlets in the type species. In the hind wings there is an outer gradate series of cross-veins, and one radial sector with three branches.

Psychobiella sordida, new species.

Head and thorax pale yellowish brown; antennæ similar, two-thirds as long as the fore wings; legs pale yellow, middle tibiæ fusiform; abdomen brown. Fore wings a uniform brown, stigma rather reddish, venation pale, spotted and dotted with brown, hind wings more hyaline, the stigmal region darker. The fore wings are fully two and a-half times as long as broad, with the costal space broad at base; about seven veinlets in the inner gradate series, and twelve in the outer series, the

latter very oblique; the tip of the female abdomen shows two short, slender appendages close together.

Expanse, 16 mm.

From Bundaberg district, Queensland, Australia.

NOTIOBIELLA, new genus.

Related to *Symphorobius*. A recurrent vein in the fore wings; in hind wings no outer gradate series; in fore wings there is an inner gradate series, but no outer series at all; there are two radial sectors, the first connected to the second near its base; the middle and hind tibiæ are enlarged near tip.

Type.—*N. unita*.

Notiobiella externa, new species.

Head and thorax yellow brown; abdomen brown; legs pale yellow, middle and hind tibiæ fusiform; antennæ pale, tips rather darker, about one-half the length of the fore wings. Fore wings pale, venation pale brown, the forkings often dark brown, two spots between subcosta and radius near base, and over subcosta at the stigma is a dark brown spot extending out each way. Hind wings pale, stigma barely darker. Fore wings rather narrow, about two and a half times as long as broad, costal area not very broad at base, and with few veins; two radial sectors.

Expanse, 9 mm.

From Middle Queensland, Australia.

Notiobiella stigmatica, new species.

Extremely pale yellowish throughout; apical third of antennæ black; antennæ plainly more than one-half the length of the fore wings. Wings hyaline, veins faintly brown, and some cross-veins faintly margined with brown; the cross-vein connecting medius and cubitus near base is dark brown; in the hind wings the stigmal area is more yellow. Fore wings a little more than twice as long as broad, broadest at middle, costal area not very broad at base, and with few veins; two radial sectors, connected at extreme base of the second one; in the hind wings the stigmal area is very strongly swollen or bowed outward. The tip of the male abdomen has a pair of strong claspers.

Expanse, 11 mm.

From Middle Queensland, Australia.

Notiobiella unita, new species.

Head pale yellowish; antennæ similar, about one-half the length of fore wings; thorax yellowish brown; abdomen also brown, but darker

above near tip; legs pale yellowish, middle and hind tibiae fusiform. Fore wings pale, venation mostly pale brown, but the forking of many veins is dark brown, and a dark brown spot on a veinlet connecting the first and second radial sectors. Hind wings pale, stigmal region distinctly darker. The fore wings are fully two and one-fourth times as long as broad, plainly broadest at middle, the costal region not very broad, and with but few veins; two radial sectors.

Expanse, 14 mm.

From Bundaberg district, Queensland, Australia.

Notiobiella obliqua, new species.

Face pale yellowish, vertex dark and with rather long yellow hair; thorax yellowish brown, darker on the sides; abdomen dark brown; antennae pale yellowish, not one-half as long as fore wings; legs pale yellow, middle and hind tibiae fusiform, and each with a submedian brown band. Fore wings very broad, hardly twice as long as broad, costal area extremely broad at base, so that the wing is about as broad at base as at middle; color pale yellowish, but with an oblique brown band across it, beyond middle on costa, and before middle on anal margin; the forks of many veins and some cross-veins are dark brown, and two distinct dark brown spots in basal half between the subcosta and the radius; costal area very densely veined; two radial sectors; hind wings pale, with a brown stigma.

Expanse, 12 mm.

From North Queensland, Australia.

Notiobiella pretiosa, new species.

Head pale yellowish, vertex with two submedian dark dots; antennae pale, blackish beyond middle, tip pale, basal joints with dark mark on inner side; thorax pale, anterior margin dark, two dark dots on each lateral lobe, and the scutelli black; abdomen brown, apex pale; legs pale, the swollen tibiae with two faint dark marks. Wings hyaline, venation close and dark brown, almost all of the cells have several brown spots, usually transverse, and forming irregular bands across the wing, the largest spot is toward the base and between the subcosta and radius; hind wings faintly smoky, stigma darker, veins brown. Fore wings about two and a fourth times as long as broad, front and hind margins sub-parallel, tip broadly rounded, costal area extremely broad at base, and with many veins, no distinct stigma, two radial sectors, first near base, second far out. Hind wings have the stigmal area barely swollen outward.

Expanse, 10 mm.

From Fiji Islands (Coll. Muir).